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REMOTE CONTROL HANDSET WITH PERMANENT MEMORY BOARD

The invention concerns a remote control unit.

The object of the invention is a portable unit, intended to communicate with all existing home devices, such as: television, hi-fi outfit, videocassette player, CD player, etc....

The unit, according to the invention, is intended to communicate with any device with a great simplicity and perfect ergonomomy.

The past few years have seen the development of ever-more sophisticated remote-control systems; for example, a remote control of which a part of the keyboard is a touch-screen, configurable as a function of the device with which it communicates. This product, which has the advantage that it can take the place of several remote controls, is conceived for a set number.

Programmable units have also appeared which have been conceived to record different functions from other remote control units. This type of remote control, because of its universal nature, features a large number of keys and, for this reason, its ergonomomy leaves something to be desired. Moreover, the implementation of the unit programming is arduous for the uninitiated. Additionally, no matter how complex the remote control keyboards may be, they are not upgradeable and, consequently, cannot be adapted for future applications.

The invention seeks to remedy these drawbacks, and its goal is to present a new concept for remote control units which could, among other things, act as a remote control that is both flexible and adaptable, and whose ergonomomy is perfectly adapted and modulatable.

The remote control unit, according to the invention, features keys, symbols corresponding to different functions, signal emitters and receptors to control a device, and

lighting for symbols, and is characterized by the fact that the unit features a means for receiving of a chip card, a chip card reader, a microprocessor and a memory source. This chip card features a pre-recorded set of parameters for the remote control of different devices for the management, on the one hand, of the illumination of symbols corresponding to commands and, on the other hand, a set of command data for emitters of signals corresponding to the different signals for different devices and for the corresponding different functions.

Other characteristics will become apparent from the description which follows, which refers to a specific method of construction, which is given only as an example and is shown in the attached drawings, in which:

Figure 1 is a perspective view of a remote control unit, according to the invention.

Figure 2 shows a schematic view of the unit block

Figure 3 shows a microswitch.

Figure 4 shows a section view of a microswitch, with a key in relief.

Figure 5 shows a schematic view of a recording installation of data on a chip card.

The remote control unit shown in figure 1 consists of a body (1) with a keyboard (2) made of a grid-type touch screen, superimposed on a liquid screen display (L S D).

The screen features various symbols (3) corresponding to the different devices that the unit can control, one symbol (4) corresponding to "Play" and one symbol (5) corresponding to "Stop", symbols (6) and (7) corresponding, respectively, for example, to an increase and a decrease of sound volume, symbols (8) and (9) corresponding respectively, for example, to an increase and decrease in luminosity, and symbols (10) made up of figures 1 through 9 and 0, corresponding to an emission of an infrared code starting from a selected symbol (3).

Finally, the unit is pierced with a slot (10) designed to receive a chip card (11) featuring a memory (12) of type EPROM and/or EEPROM.

Unit (1) features a means of emission (13) and reception (14) linked by a hardwired logic circuit (20), which is controlled by a microprocessor (15) and synchronized by a timer (16).

The configurable touch-screen keyboard (2) is controlled by a specific logic circuit (17), which is linked to microprocessor (15). The circuit is capable of controlling a memory space that uses an EEPROM technology (18), provided to memorize all data and specifying parameters, recorded in microcircuit (12) on memory card (11), even if there is insufficient battery power to remember data, thanks to the use of EEPROM technology.

A logic circuit (20), controlled by microprocessor (15), is linked to an interface, memory card reader (21), which can read data and parameters that specify each application memorized in the memory cards. Memory card reader (21) can also write information and data on microcircuit (12) of memory card (11).

In figure (3), a tactile grid (32) is shown. It consists of microcontacts (31) and of capacitive or equivalent type (i.e. "low cost"). All these microcontacts are transparent, so that displayed figures are not obscured. Each microcontact is located exactly in the center of the display zone. Each zone forms part of the screen.

In order to make memory card (11), it is easier and, more important, faster to memorize all data, integrating all parameters of all the remote controls on the market into a hard computer disk unit (25) and thus to propose to put everything into a communication unit, object of the invention, one or more memory cards (11) made with EEPROM technology, programmed instantaneously upon user demand. In order to be able to configure the remote control handset (1) and to change it into a single remote control, capable of taking the place of all remote controls that were previously necessary, the seller of the remote control handset (1), or other accredited organization, has at its disposal a computer (25) (figure 3), whose hard disk has

memorized all data, integrating all the parameters of all the remote control units on the market. This computer is equipped with a device (19) that can record data from one or the other type of remote control on microcircuit (12) of a memory card (11).

The various symbols are borne on reliefs (30) in the shape of a spherical section, on which pressure causes a characteristic click. Each one of these reliefs consists of, or is superposed on, a microswitch (31) (see figure 4). The relief keyboard thus described, and the microswitches, are transparent and superimposed on a crystal screen.

Display takes place step by step. The display step must be coherent, with microswitches in the tactile grid. It is discontinuous. As specified above, a microswitch acts exclusively in the zone. The pressure exerted on the microswitch will indicate to the handset's microprocessor that it must activate the infrared code recorded in the memory and in correspondence with the symbol displayed under the microswitch. The microprocessor receiving this signal will trigger the command to emit the specific code. Once it has been identified, the infrared code, correspondingly, will be emitted by infrared diodes through the hardwired logic.

The remote control handset has rounded shapes for easy handling, and is made of a plastic type material, protected by a rubber-type material to protect it from impacts. Colors should be bright and/or phosphorescent for use in low light.

Handset (1), from the beginning, is not intended for any specific use. It is memory card (11), once it has been inserted into reader (21) for this purpose, that will determine the functionality of the remote handset by microcircuit (12) on which all parameters and data have

been recorded that could define the application and configure crystal screen (2). Symbols designed to be activated are positioned under the key reliefs of transparent keyboard (2). In effect, for each application determined by the memory card, the transparent relief keyboard (2) will show a display adapted for a definite use, thanks to all the parameters recorded in the memory card. The memory of said card (11) is a microcircuit made of hardwired logic, architected or not, around a microprocessor based on requirements. This microcircuit consists of an "EPROM" and/or "EEPROM"-type memory, as needed. Handset (1) will be configured for reading parameters recorded in the memory card; said parameters will define the nature of the signals, analog and/or numeric, that can give and receive specific instructions, via the chosen transmission support, such as infrared to "INSTAR" of most remote controls in use today, or according to all known communication support.

Interest in configuration using a memory card is obvious, for at least two reasons: firstly, it allows the one-piece handset to take the place of multiple handsets, and secondly, this one-piece handset can be adapted to any other future application, like remote controls for air-conditioner, electric powered window blinds, opening of powered gates etc. For air-conditioner controls, the handset is made to be equipped with sensors for thermometers, and/or hydrometers, and/or barometers etc....All the sensors display their measurements on the crystal screen. The list of applications is thus almost infinite, due to the fact that the screen is renewed with each application, and the instructions that can be emitted by the handset are reprogrammed according to the desired application.

So that it will not be necessary to insert the memory card (11) each time in order to go

from one application to another, handset (1) is provided with a memory that can remember multiple applications, and for each of these applications, the transparent relief keyboard (2) displays a symbol (6) representing said application. Each symbol is recorded in the memory card; for example, if we insert, into the handset, a memory card designed to configure the portable handset for a videocassette recorder, and the handset reacts, the transparent relief keyboard (2) will immediately display the keys of the videocassette remote control, and the handset will react to pressure on the relief key, like a traditional remote control.

Moreover, each time a new card is inserted, the keyboard will permanently display a symbol representing the new function that was just recorded. To pass from one application to another, there is no need to insert a new memory card. The user need only press the superposed relief key for the symbol representing the desired remote control function; television, videocassette player, etc. As soon as the key is pressed, the screen displays the elements, the image of the chosen remote control. The symbol pressed in this way will show and post itself, in bold or blinking, after a symbol is pressed that defines the function of the desired remote control, the screen will display the symbol of the remote-controllable device.

If the handset is set up to remember several remote-controllable devices of the same type, for example three televisions, the transparent relief keyboard (2) of the handset, will then display three television symbols, numbered 1, 2 and 3.

Once the handset has read the memory cards, which define the applications and configure the screen, the user must press the corresponding symbol to allow the handset to be configured for each selected application.

For a certain time, the screen will display the image of the chosen handset and automatically shut it off. Any pressure on the keyboard will cause the screen to light up, and will display the last configuration chosen.

Moreover, display program allows the use of a variable display keyboard.

As with all handset keys, just a few are used frequently, and most of them are used only occasionally, so the handset's touch-screen may go unused, either the entire keyboard will not be displayed, or only the keys that are used will be displayed, such as: play, stop, volume, TV or audio channel etc.... and allows several indispensable keys and symbols (7) to show in large print. This allows a customized and comfortable ergonomics, for example for the visually impaired.

Of course, the invention is not limited to the production method described and represented above. Many modifications could be made to it without having to leave the scope of the invention.